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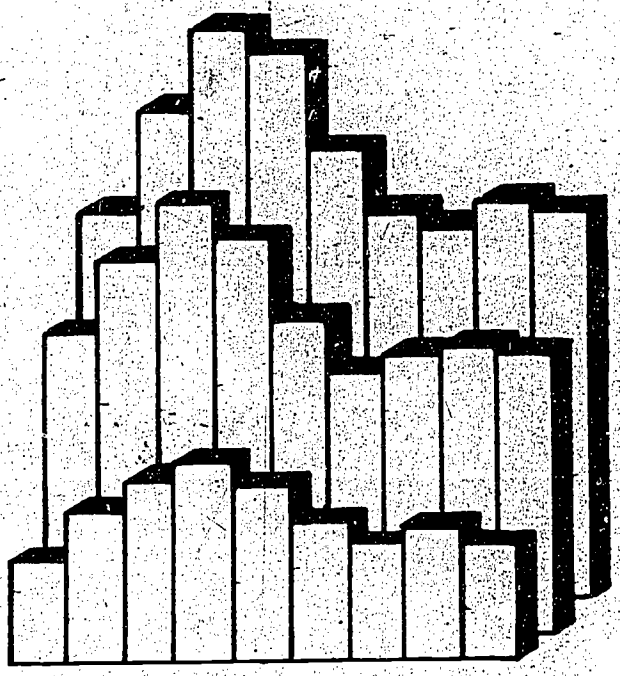
ABSTRACT

Enrollment projections for the state of Connecticut are carried out to the year 2000 in this document. Separate figures are provided for the elementary and secondary levels because their trends will be different in the 1980s. Vocational-technical school enrollment is incorporated into the secondary enrollment figures. The data should be useful to districts in planning for staffing, facilities, programs, and budgets. The report furnishes an historical background on enrollment trends in the state and discusses the factors affecting enrollment, including the birth rate, infant and child mortality, migration of school-age children, private school enrollment, and secondary school attrition. The enrollment projections were based on the cohort survival method, which assumes that recent enrollment history offers sufficient information to predict future enrollment. Enrollments between October 1974 and 1979 served as the data base. The report also evaluates prior projections. Appended are enrollment figures from 1960 through 1980, actual and projected births for Connecticut residents from 1960 to 1995, and statistics on women of child-bearing age and fertility rates for 1970-1995 and 1970-1985, respectively. (Author/WD)

Connecticut Public School Enrollment Projections 1980



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Prepared by:
Research and Planning Unit
Peter M. Prowda, Coordinator

Graphics and cover design: Ruth Stalgaitis
Typesetting: Marcia Gionfrido and Mary Shirley, Publications Unit

For further information , please contact Dr. Prowda, 203-566-8250.

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INTRODUCTION

Projecting enrollment represents an essential element of state and local long-range planning to ensure that the finite educational resources are managed effectively. The goals and objectives developed during the period of sustained enrollment growth may no longer be applicable during this time of shrinking enrollment. Now, setting priorities can determine not only when a program, facility, or position will be funded, but whether it will be funded at all. School officials may have to look beyond local town boundaries when planning for the 1980s. This report is designed to assist local and regional planners by presenting the enrollment trends in Connecticut.

Connecticut has a history of projecting enrollment for long-range planning. Between 1948 and 1971 projections were reported in *Connecticut's Need for New Teachers.* In 1973 the title was changed to *Enrollment Projections and Staff Needs, 1973-1981.* For the next few years, only an unpublished report, "Connecticut Public School Enrollment Projections, 1975-1980," was available. The 1978 report, *Connecticut Public School Enrollment in the 1980's* emphasized the use of enrollment projections not only for anticipating staffing need but also for physical, fiscal and program planning. This current report updates the projections made in 1978 and maintains the broader perspective established in the 1978 document.

This report incorporates several changes from the 1978 report. The projections have been carried out to the year 2000 to present a complete cycle of trends. Projections have been made for both elementary and secondary levels because their trends will be different in the 1980s. The estimate of birth has been reduced from a "high" and "low" series to a single estimate and the historical data base has been expanded to include 1978 and 1979 enrollment. Other methodological changes include incorporating the vocational-technical school enrollment into the secondary school enrollment and refining the estimate of migration by improving the method of allocating ungraded elementary students. These changes should improve the accuracy of the projections and make the report more informative and readable.

Projections done on both the state and local level should be used to plan staffing, facilities, programs and budgets. School districts experiencing declines can use the enrollment projection to plan staffing levels that better meet the educational needs of their students. Temporary increases in staffing ratio should be considered to avoid the personal dislocation of a layoff-and-rehire pattern that could be associated with the projected increase in elementary enrollment in the mid-1980s. In recent years enrollment projections have been used to help determine which schools to close. With the change in future enrollment, care must be exercised not only in closing schools, but also in planning new facilities based upon a temporary enrollment increase. Projections can also be utilized to realign the grade levels of schools to reflect the declines and increases in grade enrollment. Now is the time for districts to analyze their projected secondary school enrollment to begin to address the problem of maintaining comprehensive programs in the face of severely declining enrollment. This could lead to greater interdistrict and regional cooperation or hiring secondary teachers certified in more than one area. Districts with low to moderate expenditures per pupil should be analyzing their enrollment to plan for projected compliance with the

minimum expenditure requirement mandated by the school finance reform legislation. Clearly, these enrollment projections should become part of the long-range planning process that will enable educators to provide for more effective schools.

HIGHLIGHTS

- All areas of the state and all types of communities have been affected by the enrollment decline. Between 1971 and 1979 October 1st enrollment decreased in 138 of the 165 school districts. In 22 districts declines were greater than 25%.

- Total enrollment peaked in 1971 with 675,949 students and had fallen by 15.8% to 569,092 students in 1979. This decline is projected to continue until 1989 when enrollment will be 446,195, a decline of 34%. In the 1990s enrollment is projected to increase to about 481,300 students and then begin another decline.

- Elementary enrollment (preK-8 and special education) which peaked in 1970 at 487,416 students had declined by 22.3% to 378,850 in 1979. It is expected to decline to around 312,000 students by 1985, a total decline of 36%. Between 1985 and 1995 this enrollment is projected to rebound to 351,500 students. After 1995 elementary enrollment is expected to decline again.

- Secondary enrollment which peaked in 1975 with 202,662 students was 190,142 in 1979, a decline of 6.2%. It is expected to decline to 115,700 students in 1991, an anticipated decline of 43%. It is expected to increase to about 137,200 students by the end of the century, but decline afterwards.

- The number of children born to Connecticut residents averaged 53,723 during the 1960s, fell to a low of 35,607 in 1976 and was 37,058 in 1978. Preliminary data indicate an increasing number of births in 1979 and 1980. The number of live births is projected to increase to about 43,600 in 1986 and then decline to around 36,700 in 1995.

- The nonpublic schools enrolled 16.8% of resident Connecticut students in 1965 but only 11.2% in 1974. Since then they have rebounded to 12.6%, and, if their kindergarten enrollment continues to increase and their enrollment remains fairly stable, they will continue to enroll an increasing percentage of Connecticut students.

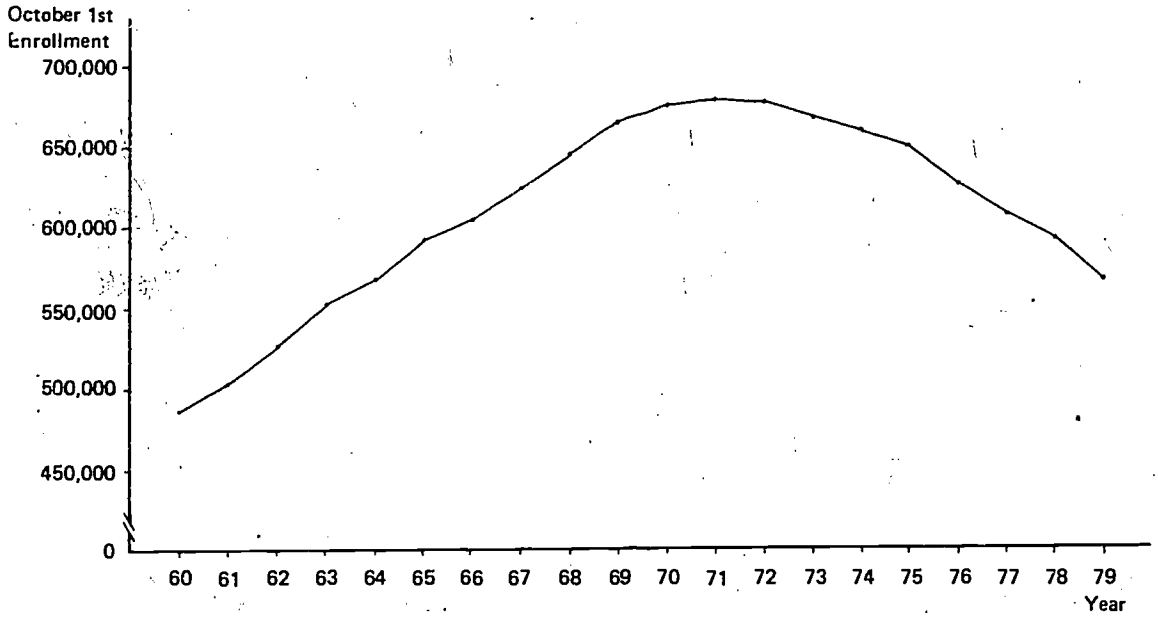
- Secondary school attrition from grades 9, 10 and 11 was estimated by comparing the current grade 10-12 enrollments with the prior year's grade 9-11 enrollment and adjusting for deaths and migration. The primary component of attrition is dropouts but also includes early graduates, retention, and transfers after grade 9 to the nonpublic schools. In 1972 this attrition index was 5.7% and currently stands at 7.4%. Between 1972 and 1979, around 8,100 to 11,200 students left school early each year.

- In the 1970s there was a significant out migration of school-age children from Connecticut. Different statistical estimates have placed the rate from -0.1% to around -0.6% annually.

I. BACKGROUND

In the past twenty years enrollment in the public schools of Connecticut has exhibited an uptrend that peaked in 1971 and a downtrend since then. Between 1960 and 1971, October 1st enrollment grew from 487,401 to 675,949, an increase of 38.7% (see Fig. 1 and Appendix A). In October 1979, midway through the projected downward cycle, public school enrollment was 569,104, a decline of 15.8% from the 1971 peak.

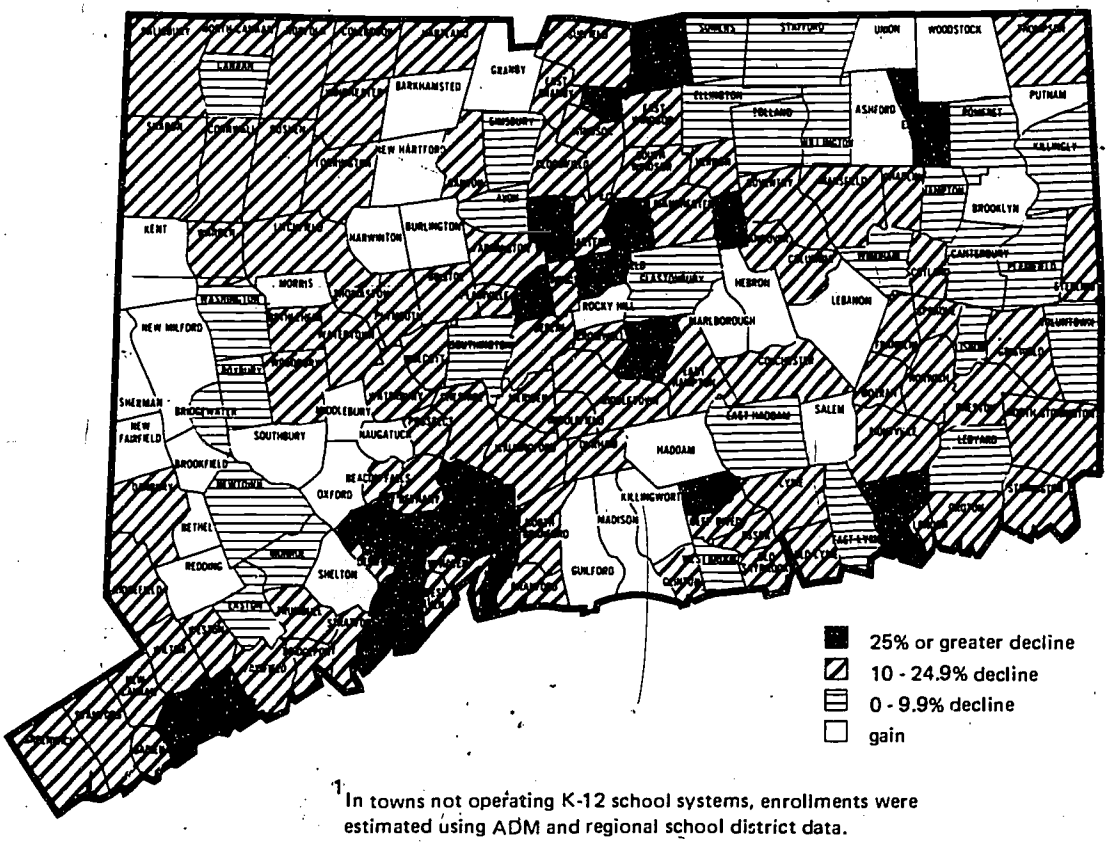
Figure 1
Public School October 1st Enrollment
1960 to 1979



The decline in enrollment has been widespread, but not uniform throughout the state. Changes in enrollment between 1971-72 and 1979-80 ranged from an increase of 64.4% in New Fairfield to a decline of 45.5% in Cornwall.[1] Enrollment declined in 83.6% of the school districts. Severe declines of 25% or more were noted in 22 districts, generally those serving medium-sized cities or the cities contiguous to Hartford or New Haven. Nevertheless, 27 districts had enrollment increases between 1971 and 1979. Seven of these are the suburbs north and east of Danbury; the rest are scattered throughout the state.

[1] Cornwall schools serve K-8 students only. Since the decline has been centered in the elementary grades, districts serving only these students will have artificially large declines. Among K-12 school districts the largest decline was 38.9% in Windsor Locks.

Figure 2.
Percent Change in Enrollment in Connecticut Towns, 1971 to 1979[1]



[1] In towns not operating K-12 school systems, enrollments were estimated using ADM and regional school district data.

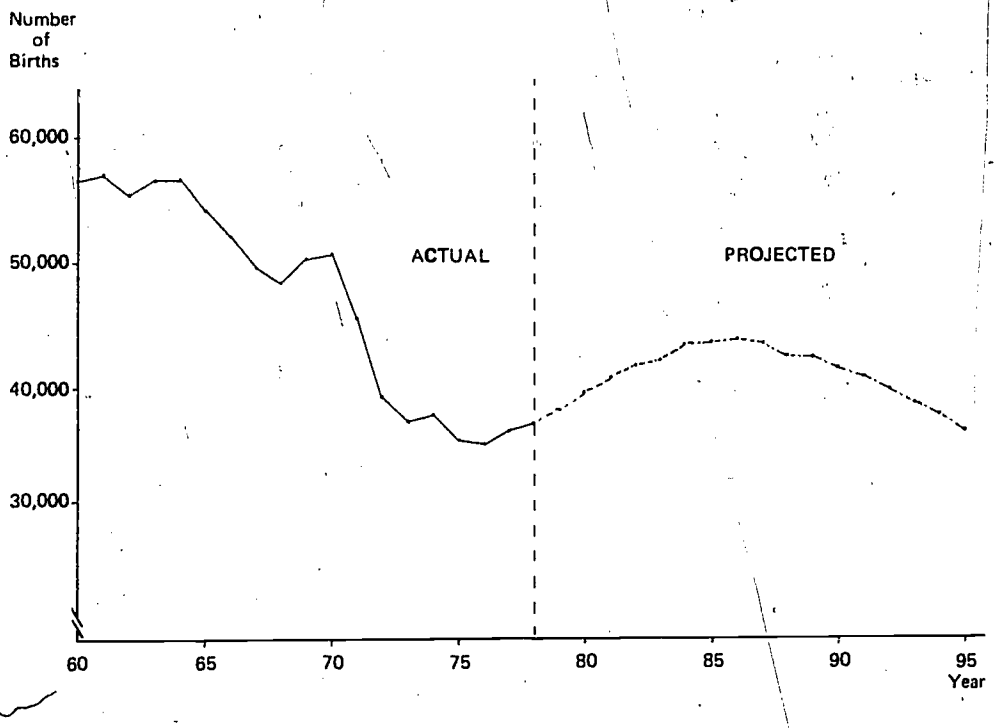
In general, school districts serving fringe and medium cities had the steepest enrollment declines followed by those serving the large cities, suburban towns, rural towns and emerging suburban towns. Among the state's five large cities the median decline was 14.1%, with declines ranging from 12.2% in Hartford to 24.9% in Stamford. In the 23 fringe cities (those with populations greater than 10,000 and contiguous to a large city) only Naugatuck gained in enrollment. Their median decline of 22.3% was the largest of any community type. Among the 18 medium-sized cities the median enrollment decline was also steep, registering 20.7%. In this category only Shelton showed no decline in enrollment. The median decline in districts serving suburban towns was 14.1%, although eight of the 45 districts had increases in October enrollments between 1971 and 1979. School districts serving emerging suburban towns (those changing from rural to suburban according to the definitions of the U.S. Census Bureau) had the smallest median decline (10.6%). Seven of these 31 school districts had increases, ranging from 0.8% in Oxford to 28.5% in Marlborough. In the 43 rural school districts, ten had increases in enrollment, but overall there was a median decline of 12.2%.

II. FACTORS AFFECTING ENROLLMENTS

All school districts should project enrollment to plan for changes in facilities, staffing and programs. But it is not enough to project enrollment. It is also important to understand the factors that affect changes in enrollment so that the projected enrollment can be adjusted if these factors change. This report examines the five major factors that affect school enrollment: children born to Connecticut residents, infant and child mortality, migration of school-age children, nonpublic school enrollment, and secondary school student attrition.

Children born to Connecticut residents. The trend in school enrollment is predicted by the pattern of births a decade earlier. Since World War II two trends in births have emerged, and now a third seems to be emerging. Between the end of the war and 1961, births rose from around 33,500 to a peak of 57,046. Between 1961 and 1976 the number of births dropped to 35,607 (see Fig. 3 and Appendix B). Births increased slightly in 1977 and 1978, and preliminary data indicate that births also increased in 1979 and will increase in 1980. This appears to be the start of a temporary period of increasing numbers of children born to Connecticut residents.

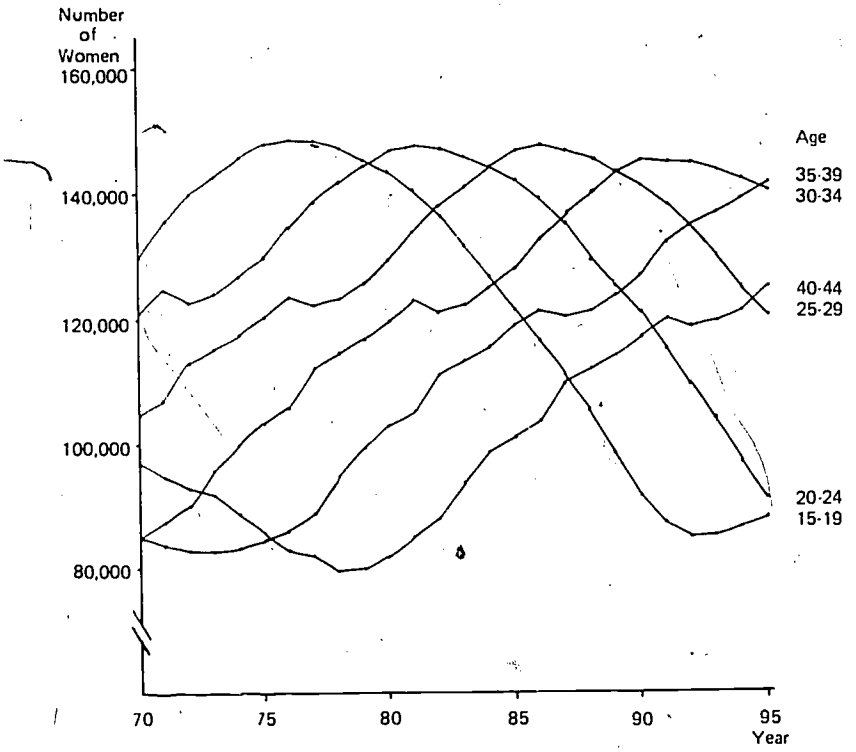
Figure 3
Actual and Projected Births to Connecticut Residents
1960-1995



Based upon an analysis of the number of women of child-bearing age (15-44 years) and their fertility rates, live births to Connecticut residents are projected to increase by 18% between 1978 and 1986, from 37,058 to around 43,600 births. However, by 1995 births are expected to decline to the 1977 level (36,700). Note that the number of births at the peak of this projected transitory increase is expected to be 13,400 below the post-war baby boom peak of 57,046. If present assumptions about fertility and number of women of child-bearing age hold, the number of births at the beginning of the Twenty-first Century will be about 32,000. Since these represent significant swings, it becomes necessary to examine the factors upon which the projections of births were made.

The 1970 U.S. Census Bureau recorded 625,090 women in Connecticut in the child-bearing ages of 15 to 44. To estimate this count for subsequent years, this number, the U.S. Census Bureau count of women 0-14 in 1970, the number of females born in Connecticut between 1971 and 1978, and the estimated number of females born in 1979 and 1980 were adjusted by the U.S. Census Bureau's estimate of 0.1% annual out migration and State Department of Health records of deaths in 1970 to 1978, and estimated deaths subsequently. In January 1980 the number of women of child-bearing age was estimated to be 725,000. This number is expected to reach 761,000 women by 1995. However, since fertility rates are related to age, it seems more important to monitor the number of women of child-bearing age by five-year age cohorts (15-19, 20-24, etc.) rather than the total number. These numbers are illustrated in Fig. 4 and presented in Appendix C.

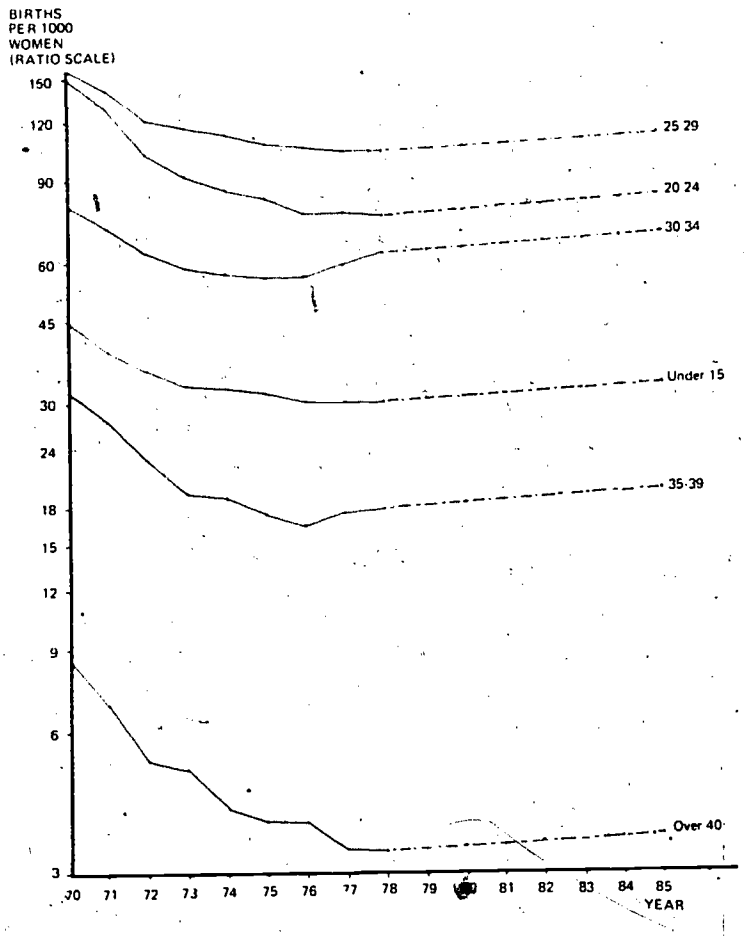
Figure 4
Estimated Women of Child-Bearing Age,
by Age Cohort, 1970-1995



Between 1970 and 1976 each five-year age cohort was increasing except for the 40-44 year olds. In 1976 the largest age cohort was women between 15 and 19 years old. This age cohort is to be the crest for the coming years. Thus, the largest age cohort will be those 20-24 in 1981, those between 25 and 29 in 1986, etc. Since women between 20-29 tend to have the highest fertility rates it is very important to monitor these age cohorts.

The second factor in predicting births is the fertility rate, which is the number of live births per 1,000 women in a specified age range. While the total fertility rate (based upon all women 15-44) in Connecticut is estimated to have declined from 81.1 in 1970 to 52.2 in 1976, and rebounded to 52.8 in 1978,[2] more interesting changes are evident in the five-year age cohort fertility rates. These are illustrated in Fig. 5 and Appendix D.)

Figure 5
Estimated and Projected Fertility Rates
1960-1985



[2] These rates differ from those reported by the State Health Department because of different estimates of the number of women of child-bearing age. However, when fertility rates are multiplied by the estimated number of women of child-bearing age to estimate the number of births, these differences cancel out.

Between 1970 and 1976 the estimated fertility rates of all age cohorts declined sharply. The fertility rate in age groups 15-19, 25-29, and 30-34 fell by around one-third while in age groups 20-24, 35-39 and 40-44 it fell by around one-half. Between 1976 and 1978 these fertility rates declined nominally except for women in their thirties which increased slightly.

For several years demographers have been predicting the end of the decline in fertility rates. Now that it appears to be at hand, the question remains what level will they reach? It was assumed that the total fertility rate will rise to its 1973 level (the level that the Office of Policy and Management also chose for its population projections), but that fertility rates of the five-year age cohorts would maintain their relative levels of 1978. Thus, the 1978 fertility rate of each age cohort was increased by 8.7%, the percent difference in the total fertility rate from 1973 to 1978. These fertility rate increases were then phased in through 1985 so that the estimated number of births in 1979 would be no more than 38,200, a preliminary estimate of births. For each year the estimated number of births was projected by summing the products of the number of women within each of the age cohorts and the estimated fertility rate of that cohort.

Infant and child mortality. Infant mortality (deaths of children under age 4) is a significant factor in projecting kindergarten enrollment from births recorded five years earlier. Child mortality, however, will have a very minor impact on elementary school projections and only a slightly greater impact on secondary school enrollments. Table 1 presents the infant and child deaths between 1970 and 1978.

Table 1
Infant and Child Mortality, 1970 – 1978

Year	Under 1	1–4	5–9	10–14	15–19
1970	872	112	111	98	222
1971	713	104	93	96	240
1972	647	117	88	98	219
1973	554	87	75	116	228
1974	573	108	64	69	195
1975	556	90	82	76	228
1976	508	66	68	66	204
1977	486	83	57	66	203
1978	426	69	69	66	233

Source: Connecticut State Health Department

In 1970, 872 children under one year old died while in 1978 the number had declined to 426. These translate into infant mortality rates (deaths per 1,000 live births) of 17.2 and 11.5 respectively. Since there are projected to be around 40,000 births per year in the 1980s, slightly over 400 infant deaths per year can be anticipated. There were few deaths among preschool and elementary school aged children. Statewide in the 1980s about 15 to 20 deaths per year per grade can be expected. Deaths among children of secondary school age increase significantly. In the 1970s deaths per year among 15-19 year olds averaged approximately 225. While this number is significant, it is a relatively minor component in the secondary school enrollment projections.

Migration of school-age children. Migration is very difficult to estimate because it is not reported, but inferred by comparing the number of children in the same cohort at two separate times. The cohort may be births in a year, children in a particular grade span, or in a particular age group. Since all methods are subject to inaccuracies in the data, the resulting estimates must be viewed cautiously.

One method that appears to provide a good estimate of migration is to compare the combined public and nonpublic school October 1st enrollment in grades 2-7 in one year with enrollment in grades 3-8 in the subsequent year (see Table 2). The accuracy of this method depends upon a correct count of nonpublic students, and the accurate assignment of special education and ungraded elementary students to their appropriate grades. Special education students were allocated to a grade according to the proportion of total students in that grade for a particular year. The ungraded elementary students in the public schools were allocated proportional to the total grades 1-6 enrollment after adjustments were made for districts known to deviate from this pattern. Ungraded elementary students in the nonpublic schools typically fell into two patterns, either grades 1-3 or grades 1-8. They were identified on a school-by-school basis and allocated equally to the appropriate grade. The estimated migration rate is the percentage of the difference between the number of children in grades 2-7 in one year and the number of grade 3-8 children in the subsequent year after adjusting for the estimated number of deaths of children 7 to 12 years old. In the period between 1970 and 1979 this method yielded an average migration rate of -0.64%, with a range between -0.43% to -0.77%.

Table 2
Estimated Migration Rate
Using Actual and Expected Enrollment in Grades 3 through 8
in Connecticut Schools, 1970 - 1979

Year	Enrollment* Expected	Actual	Difference	Est. Deaths	Net Difference	Est. Migration Rate
1970-1971	371,507	369,559	-1948	126	-1822	-0.49%
1971-1972	369,423	366,736	-2687	113	-2574	-0.70%
1972-1973	364,209	361,310	-2899	112	-2787	-0.77%
1973-1974	355,039	353,407	-1632	115	-1517	-0.43%
1974-1975	344,253	342,076	-2177	80	-2097	-0.61%
1975-1976	332,620	330,102	-2518	95	-2423	-0.73%
1976-1977	320,772	318,458	-2314	80	-2234	-0.70%
1977-1978	310,502	308,497	-2005	74	-1931	-0.62%
1978-1979	300,310	298,156	-2154	81	-2073	-0.69%

*Expected is grades 2-7 enrollment in initial year; Actual is grades 3-8 enrollment in subsequent year.

These estimated migration rates are compared with other estimates of migration in Table 3. Methods A, B and C, all are based on comparisons of October 1st enrollment for grades 2-7 one year with enrollment in grades 3-8 the subsequent year. Method A is described in detail above. Data for Method B were taken from an unpublished report, "Connecticut Public School Enrollment Projections, 1975-1980." It featured an accurate allocation of ungraded elementary students, but did not include nonpublic or special education students in the analysis. Generally the results follow the same pattern of Method A, but with higher

estimated migration rates. Method C was reported in *Connecticut Public School Enrollments in the 1980s.* The method of allocating ungraded elementary students into grade levels (dividing the number of public and nonpublic ungraded elementary students by eight) causes the migration rates to be severely overestimated. Methods D, E and F are based upon age cohorts collected on the ED 156 form, the Enumeration of Children. These data are known to be more accurate for school age children than other ages. Method D, which is felt to rival Method A in its accuracy, compares the number of children aged 6 to 13 one year with those 7 to 14 the subsequent year. This resulted in an estimated migration rate of around -0.40% annually, with yearly estimates ranging from +0.15% between 1977 and 1978 to -1.13% between 1974 and 1975. Method E, which is used by the Connecticut State Health Department, is the same as Method D except that it compares age ranges 4 to 15 with 5 to 16. This method severely overestimates the migration rate because of the known undercount of 4-year-old children. Comparable data for Methods D and E are available only from 1972 when the collection of data was changed from September to January. Method F compares the number of 8-year-olds on January 1, 1979, with the number of children born during 1970. After adjusting for infant and child mortality this cohort in 1979 was 98.94% of the number of births in 1970. This is equivalent to an average annual migration rate of -0.13%.

Table 3
Estimates of Migration in Connecticut

Year	"A"	"B"	"C"	"D"	"E"	"F"
1970-1971	-0.49%	-0.49%	+0.43%	-	-	-0.13%
1971-1972	-0.70%	-0.78%	+0.30%	-	-	-0.13%
1972-1973	-0.77%	-0.94%	+0.00%	-0.67%	-0.25%	-0.13%
1973-1974	-0.43%	-0.77%	+0.25%	-0.1	+0.69%	-0.13%
1974-1975	-0.61%	-	-0.03%	-1.13%	-0.11%	-0.13%
1975-1976	-0.73%	-	-0.53%	-0.06%	+0.87%	-0.13%
1976-1977	-0.70%	-	-0.26%	-0.74%	+0.52%	-0.13%
1977-1978	-0.62%	-	-	+0.15%	+1.29%	-0.13%
1978-1979	-0.69%	-	-	-0.17%	+0.70%	-0.13%

Two facts are apparent. First, there was an out migration of school-age children during the 1970s. Second, much more research needs to be done to refine the methodology of estimating migration. A comparison of the 1980 census data with the 1970 data should assist in determining which model should be adopted.

Nonpublic school enrollment. Connecticut residents who do not enroll their children in the public schools have a variety of nonpublic schools from which to choose. These range from the Catholic schools run by the Bridgeport, Hartford and Norwich dioceses, to schools with other religious affiliations as well as several independent schools. Changes in the number and size of schools and the cost of these schools will impact the public school enrollments.

Table 4 presents the number and proportion of students whose families reside in Connecticut that are enrolled in the state's nonpublic schools. Enrollment in the nonpublic schools peaked at 116,442 students in 1966, five years before the peak in public school enrollment. The proportion of Connecticut residents attending the nonpublic schools declined from 16.8% in 1965 to 11.2% in 1974. Since then this proportion has increased to 12.6% as nonpublic school enrollment has stabilized around 80,000 while public school enrollment has continued to decline.

Table 4
Nonpublic School Enrollment of Connecticut Residents

Year	Total Connecticut Enrollment	Nonpublic Enrollment*	Nonpublic as a percent of total enrollment
1965	690,725	115,927	16.8
1966	713,290	116,442	16.3
1967	731,538	115,986	15.9
1968	750,320	114,459	15.3
1969	760,442	105,358	13.9
1970	764,039	101,834	13.3
1971	761,032	94,165	12.4
1972	754,323	89,562	11.9
1973	741,137	84,492	11.4
1974	731,895	82,123	11.2
1975	723,431	82,552	11.4
1976	705,372	82,195	11.7
1977	684,328	80,403	11.7
1978	661,023	79,777	12.1
1979	636,470	79,893	12.6

*Includes only students whose residence is in Connecticut. It was estimated at 94.5 percent of total nonpublic enrollment prior to 1972.

Enrollment in the nonpublic schools is to some extent affected by physical and fiscal constraints. The enrollment decline in the parochial schools in the late 1960s was precipitated more by lack of money and difficulty in attracting staff than by a lack of applicants. These problems seem to have abated somewhat in the late 1970s. Some evidence for this is that kindergarten enrollment has increased from 1,929 in 1971 to 3,867 in 1979. During the 1980s it is likely that nonpublic schools will enroll a greater proportion of Connecticut children as their enrollment remains steady or declines at a rate slower than that of the public schools.

Secondary school attrition. A final factor, high school attrition, is presented in Table 5. Attrition in grades 9, 10 and 11 was estimated by comparing the actual grade 10-12 enrollment with the grade 9-11 enrollment the prior year. The primary component of high school attrition is dropouts, but it also includes retention, deaths, migration, early graduation and transfers to the nonpublic schools after grade 9. An attrition estimate adjusted for estimated deaths and migration was also calculated. Neither attrition rate includes those students who leave during the 12th grade. Between 1972 and 1979 the adjusted attrition rate has ranged from 5.3% to 7.4%, with the higher rates occuring more recently. In this interval an estimated 8,100 to 11,200 students left school prematurely each year. Between 1976 and 1979 the 12th grade class was 78.6% the size of the 9th grade class three years earlier. If the attrition rate continues to increase, the number of secondary school students will be less than this current projection.

Table 5
Estimated High School Attrition

Years	Enrollment[1] Expected	Actual	Difference	Percent Difference	Est.[2] Death	Est.[3] Migration	Net	Adjusted Attrition Rate
1972-1973	153,560	143,610	9,950	6.5%	107	1,121	8,829	5.7%
1973-1974	154,570	145,215	9,355	6.1%	114	1,237	8,118	5.3%
1974-1975	155,045	145,727	9,318	6.0%	92	713	8,605	5.6%
1975-1976	156,240	145,384	10,856	6.9%	106	984	9,872	6.3%
1976-1977	154,255	143,574	10,681	6.9%	95	1,172	9,509	6.2%
1977-1978	153,044	141,475	11,569	7.6%	94	1,102	10,467	6.8%
1978-1979	150,212	138,065	12,147	8.1%	106	961	11,186	7.4%

[1] Expected is 9-11 enrollment in initial year; actual is 10-12 enrollment in the subsequent year.
[2] Deaths estimated by taking 20% of deaths in age range 10-14 plus 40% of those in the 15-19 age range in the initial year.
[3] Migration estimates are taken from table 2.

III. PROJECTED PUBLIC SCHOOL ENROLLMENT

Methodology. The cohort survival method was utilized to project enrollment. This method does not isolate the factors of migration, mortality, nonpublic school enrollment or high school attrition, but rather assumes that recent enrollment history (which subsumes all these factors) is sufficient information to predict future enrollments. The enrollment base utilized for these projections was the October 1st enrollment reported on ED025 between 1974 and 1979. For each grade the proportion of students enrolled in the next higher grade in the next year was computed. Kindergarten enrollment was projected from births five years earlier. These "persistence rates" were then utilized to project future enrollments. To the extent that future trends do not differ significantly from those of the recent past, this method will provide highly accurate estimates of enrollment. The projected enrollment is illustrated in Table 6 and displayed in Fig. 6.

Projected elementary enrollment. Enrollment in prekindergarten through grade 8 and in all full-time special education classes peaked at 487,416 students in 1970. In 1979 there were 378,950 students, a decline of 22.3%. The rate of decline will decrease during the early 1980s with elementary enrollment expected to reach a low of about 312,000 students in 1985, a total decline of 36% from 1971. Starting in 1986 and continuing until 1995 this enrollment is projected to increase to about 351,500. This increase will be transitory, however. Beginning around 1996 enrollment will again decline slowly and by the year 2000 will be around 333,500. Before this decline abates, enrollment will fall below the expected low for 1985. It would take a large increase in the fertility rates of women of child-bearing age for this pattern of events not to occur.

Projected secondary enrollment. Enrollment in grades 9-12 of the local public schools, the vocational-technical schools, E.O. Smith, the three endowed and incorporated academies, and the other educational facilities with secondary programs peaked at 202,662 students in 1975. By 1979 enrollment had declined by 6.2% to 190,142 students. This enrollment is expected to decline throughout the 1980s and bottom out at approximately 115,700 students in 1991. This anticipated decline will be 43.0% of the peak enrollment in 1975. In the 1990s secondary enrollment should increase slightly, peaking at around 137,200 students in the year 2000. Thereafter, following the pattern of elementary enrollment, it should decline to levels below the expected 1991 low. The class of 1996 has already been born. Only drastic shifts in migration, mortality, attrition or nonpublic school enrollment can alter this expected pattern.

Projected total enrollments. Public school enrollment peaked in 1971 at 675,949 students. By 1979 this enrollment had fallen by 15.8% to 569,092. This decline will continue until 1989, when enrollment is expected to bottom out at 446,195, a decline of 34%. Based on the assumption of slightly increased fertility of an increasing number of women of child-bearing age and no changes in other factors, enrollment through the late 1990s should increase by 7.9% over the 1989 low to around 481,300 students. Thereafter, as the number of women of child-bearing age declines so will total enrollment — most likely to levels significantly below the 1989 low.

Figure 6
Public School Enrollment Projections
1980-2000

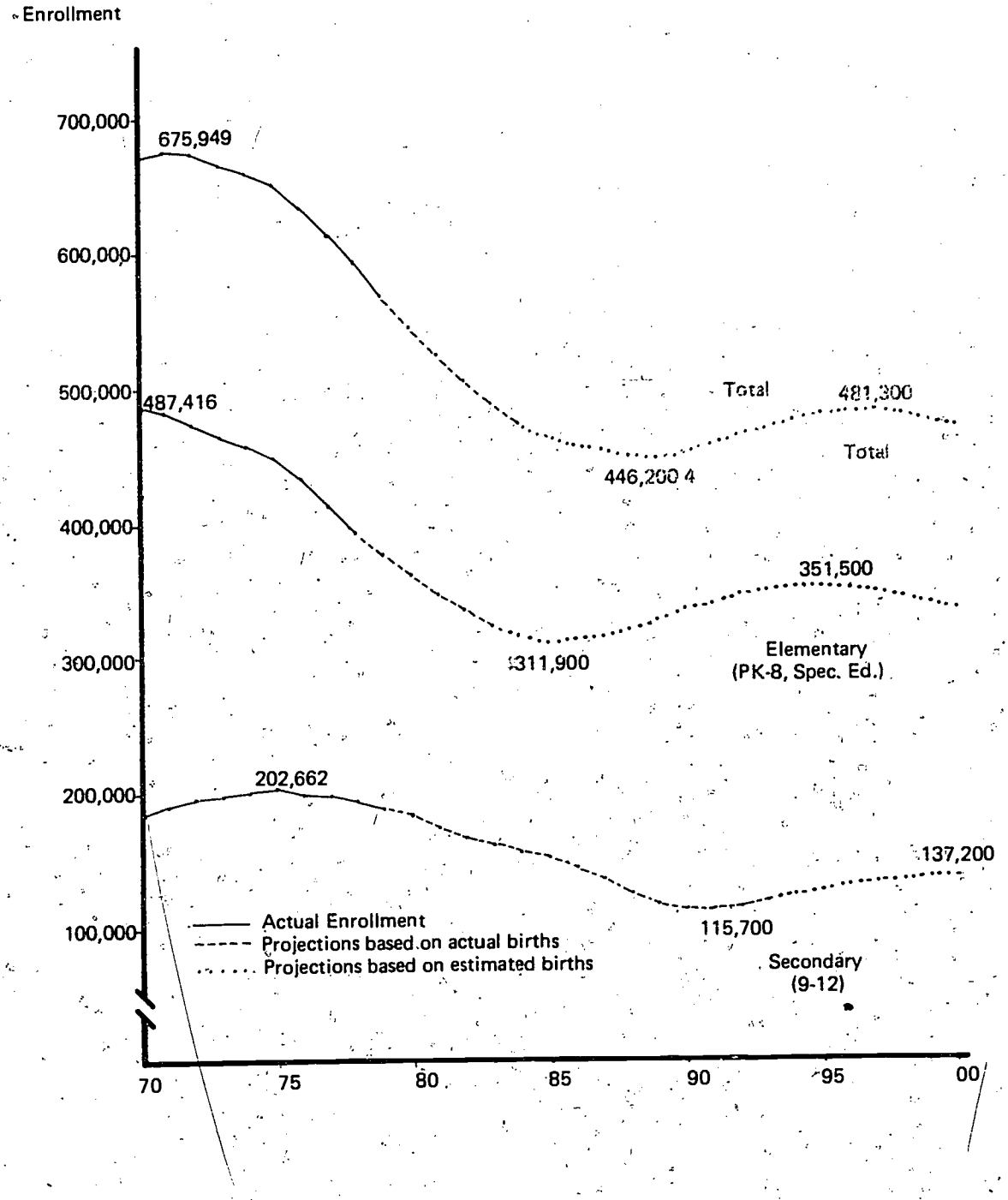


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Table 6
Connecticut Public School Projected October 1 Enrollment
1970-2000

School Year	Elementary (PreK-8, Sp. Ed.)	Secondary (9-12, Post Grad)	Total	Pct. Change Prior Peak/Valley
		ACTUAL		
1970	487,416*	183,730	671,146	-
1971	483,836	192,113	675,949*	-
1972	476,604	197,775	674,379	- 0.2
1973	467,868	199,220	667,088	- 1.3
1974	459,779	201,010	660,789	- 2.2
1975	449,787	202,662*	652,449	- 3.5
1976	434,403	200,637	635,000	- 6.1
1977	416,172	200,597	616,389	- 8.8
1978	396,975	196,782	593,757	-12.2
1979	378,962	190,142	569,104	-15.8
		PROJECTED		
1980	362,684	184,578	547,262	-19.0
1981	348,561	176,741	525,302	-22.3
1982	337,280	168,121	505,401	-25.2
1983	326,559	162,310	488,869	-27.7
1984	317,196	158,827	476,023	-29.6
1985	311,908+	154,289	466,197	-31.0
1986	312,173	146,684	458,857	-32.1
1987	315,224	137,203	452,427	-33.1
1988	320,441	126,827	447,268	-33.8
1989	326,919	119,276	446,195+	-34.0
1990	333,800	116,325	450,125	+ 0.9
1991	339,750	115,681+	455,431	+ 2.1
1992	345,001	117,329	462,330	+ 3.6
1993	348,590	120,040	468,630	+ 5.0
1994	350,820	123,201	474,021	+ 6.2
1995	351,488*	126,509	477,997	+ 7.1
1996	350,817	129,450	480,067	+ 7.6
1997	348,755	132,508	481,263*	+ 7.9
1998	344,712	134,758	479,470	- 0.4
1999	339,570	136,391	475,961	- 1.1
2000	333,481	137,197*	470,678	- 2.2

*Peak
+Valley

IV. EVALUATION OF PRIOR PROJECTIONS

Projecting enrollment is as much an art as a science. At every step of the process assumptions have been made about the pattern of births, deaths, migration, attrition and nonpublic school enrollment. If patterns of these variables in the near future differ from those of the recent past, then the projections using the cohort-survival method will not be sufficiently accurate. How well past enrollment projections have fared is illustrated in Table 7.

Table 7
Accuracy of Prior Enrollment Projections

Year Published	Years of Data Base	Projected 1979 Enrollment	Actual Enrollment	Difference	Percent Difference	Average Annual Percent Difference
1978	1973-1977	574,485[1, 2]	569,104[2]	+ 5,381	+ 0.9%	0.45%
1975	1969-1974	582,356	556,577	+ 25,778	+ 4.6%	0.90%
1973	1967-1972	608,593	556,577	+ 52,016	+ 9.3%	1.28%
1970	1964-1969	716,579	556,577	+160,002	+28.7%	2.56%

[1] Low series estimate.
[2] Includes vocational-technical schools.

The 1970 projection is taken from *Connecticut's Need for New Teachers, 1970-1986.* This projection turned out to be exceedingly high (by 28.7%) because it assumed that during the 1970s births would increase to over 70,000 annually. The estimates in the 1973 publication *Enrollment Projections and Staff Needs, 1975-1981,* were also high because births, which had declined to 39,100 in 1972, were projected to increase to 43,300 by 1975. In 1975 an unpublished report, "Connecticut Public School Enrollment Projections, 1975-1980," predicted that 1979 enrollments would be 582,356. This was 4.6% above the actual enrollment, an average annual error rate of less than 1%. The decline in the high school persistence rates and the stabilization of nonpublic school enrollment were the primary causes for the difference between actual and predicted enrollment. The most recent enrollment projection was published in *Connecticut Public School Enrollment in the 1980's.* The "low series" estimate projected 574,485 students in 1979, less than 1% above the actual count. The projection of elementary enrollment was low by 0.15%, but the projection of secondary enrollment was 3.04% above the number enrolled. These secondary projections were high because vocational-technical school enrollment fell below their projected levels and high school persistence fell over 1% below the expected level. Because of the refinements introduced in this report, the projections are expected to deviate from the actual enrollment by less than 0.5% a year for the next five years.

APPENDIX A

Public School Enrollment
1960-61 through 1979-80

Year	October 1st Enrollment — Local Public	Vocational - Technical	Total[1]	ADM[2]
1960-61	481,114	6,287	487,401	479,773
1961-62	496,943	6,430	503,373	500,918
1962-63	520,244	6,962	527,206	523,143
1963-64	543,480	7,274	550,754	543,650
1964-65	560,079	7,559	567,638	564,966
1965-66	574,798	7,701	582,499	584,263
1966-67	596,848	7,296	604,144	600,001
1967-68	615,552	7,735	623,287	619,583
1968-69	635,861	8,212	644,073	637,201
1969-70	655,084	8,766	663,850	657,266
1970-71	662,205	8,941	671,146	664,736
1971-72	666,867	9,082	675,949	668,218
1972-73	664,761	9,618	674,379	663,421
1973-74	656,645	10,443	667,088	655,982
1974-75	649,772	11,017	660,789	649,608
1975-76	640,879	11,570	652,449	639,025
1976-77	623,177	11,823	635,000	620,865
1977-78	603,925	12,464	616,389	601,263
1978-79	581,246	12,511	593,757	578,113
1979-80	556,577	12,527	569,104	—

[1] Includes 165 local public school districts, E.O. Smith, 3 academies, other educational facilities and the vocational-technical schools. [2] ADM is an average of Fall and Spring enrollment with an adjustment for summer school enrollment. Although this report concentrates on October enrollment, the ADM count was included for historical reference.

APPENDIX B

Actual and Projected Births to Connecticut Residents 1960 to 1995

Year	Actual Births	Year	Projected Births
1960	56,659	1979	38,198*
1961	57,046	1980	39,395
1962	55,480	1981	40,626
1963	56,476	1982	41,396
1964	56,611	1983	42,076
1965	54,208	1984	43,351
1966	52,131	1985	43,570
1967	49,840	1986	43,617
1968	48,633	1987	43,303
1969	50,146	1988	42,691
1970	50,738	1989	42,260
1971	45,633	1990	41,654
1972	39,477	1991	40,880
1973	37,435	1992	39,946
1974	36,767	1993	38,862
1975	35,971	1994	37,791
1976	35,607	1995	36,712
1977	36,632		
1978	37,058		

*As this report was going to press the State Health Department released a preliminary estimate of 1979 births of 38,457.

APPENDIX C

Women of Child-Bearing Age in Connecticut
Estimated and Projected
1970 - 1995

Year \ Age	15-19	20-24	25-29	30-34	35-39	40-44	Total
1970	130,869	121,598	104,459	85,850	85,779	96,535	625,090
1971	136,374	124,465	106,864	87,038	84,142	94,643	633,526
1972	140,228	122,961	113,520	90,046	83,249	92,205	642,209
1973	143,441	123,928	115,493	96,221	82,925	89,796	651,804
1974	146,297	126,660	117,326	100,780	83,784	87,263	662,110
1975	148,468	129,920	120,645	103,578	84,988	84,646	672,245
1976	148,636	135,389	123,510	105,984	86,181	83,050	682,750
1977	148,188	139,226	122,043	112,594	89,179	82,180	693,410
1978	146,827	142,433	122,971	114,538	95,300	79,901	701,970
1979	145,360	145,272	125,682	116,354	99,829	80,780	713,277
1980	143,223	147,450	128,918	119,652	102,601	81,990	723,834
1981	140,378	147,630	134,359	122,494	104,981	85,161	735,003
1982	136,454	147,204	138,189	121,032	111,536	88,138	742,553
1983	131,144	145,861	141,379	121,971	113,481	94,210	748,046
1984	125,308	144,417	144,207	124,664	115,287	98,702	753,585
1985	121,941	142,281	146,372	127,872	118,547	101,419	758,432
1986	116,659	139,441	146,547	133,268	121,353	103,744	761,012
1987	110,556	135,525	145,114	137,062	119,897	110,207	759,361
1988	104,862	129,228	144,767	140,227	120,823	112,117	752,024
1989	98,399	125,401	143,312	143,129	123,485	113,887	747,613
1990	91,479	121,067	141,192	145,177	126,663	117,104	742,682
1991	86,829	115,823	138,373	145,350	132,006	119,866	738,247
1992	85,641	109,764	134,488	144,920	135,766	118,431	729,010
1993	85,581	104,108	129,231	143,585	138,899	119,310	720,714
1994	86,477	97,692	124,442	142,141	141,675	121,983	714,410
1995	88,305	90,824	120,141	140,038	143,802	125,125	708,235

APPENDIX D

Fertility Rates by 5-Year Age Cohorts, Estimated and Projected 1970-1985

Year	Ages: Under 20	20-24	25-29	30-34	35-39	Over 40	Total
			Estimated				
1970*	45.4	149.0	155.9	79.8	31.9	8.4	81.1
1971	39.5	129.1	141.3	70.8	27.7	6.8	72.1
1972	35.2	102.7	122.1	63.1	22.9	5.1	61.5
1973	33.1	92.4	116.4	58.9	19.6	5.0	57.4
1974	32.5	86.8	113.7	56.8	19.0	4.1	55.5
1975	31.4	82.9	107.9	55.3	17.5	3.8	53.5
1976	30.2	76.3	105.8	56.1	16.7	3.8	52.2
1977	30.1	77.9	104.6	59.9	17.2	3.3	52.8
1978	30.1	75.4	103.5	63.1	17.9	3.3	52.8
			Projected				
1979	30.5	76.3	104.8	63.9	18.1	3.3	53.5
1980	30.8	77.3	106.1	64.7	18.4	3.4	54.4
1981	31.2	78.2	107.4	65.5	18.6	3.4	55.3
1982	31.6	79.2	108.6	66.2	18.8	3.5	55.7
1983	32.0	80.1	109.9	67.0	19.0	3.5	56.2
1984	32.3	81.1	111.2	67.8	19.3	3.6	57.5
1985	32.7	82.0	112.5	68.6	19.5	3.6	57.4

*Actual rates based upon Census Department data.

APPENDIX E

Fall Enrollment in 1971 and 1979 and Projected 1984 Enrollment By School District

Town	Grade Span	Fall 1971 Enrollment	Fall 1979 Enrollment	1971-1979 Percent Change	Projected Fall 1984 Enrollment
Andover	K-6	333	225	-32.4	185
Ansonia	PK-12	4,040	2,565	-36.5	1,999
Ashford	K-8	406	422	3.9	362
Avon	K-12	2,351	2,194	- 6.7	1,986
Barkhamsted	K-6	376	314	-16.5	286
Berlin	PK-12	3,415	2,759	-19.2	2,339
Bethany	K-6	640	468	-26.9	406
Bethel	PK-12	2,889	3,523	21.9	3,479
Bloomfield	K-12	4,323	3,297	-23.7	2,524
Bolton	K-12	999	747	-25.2	606
Bozrah	K-8	432	310	-28.2	241
Branford	K-12	4,607	3,864	-16.1	3,289
Bridgeport	PK-12	24,489	21,239	-13.3	18,430
Bristol	PK-12	12,309	9,821	-20.2	8,110
Brookfield	K-12	2,922	3,044	4.2	2,758
Brooklyn	K-9	985	1,004	1.9	939
Burlington	K-8	688	Reg. # 10	—	—
Canaan	K-8	147	122	-17.0	106
Canterbury	K-8	615	559	- 9.1	608
Canton	K-12	1,814	1,597	-12.0	1,270
Chaplin	K-6	270	196	-27.4	184
Cheshire	K-12	5,366	4,729	-11.9	3,984
Chester	K-6	419	253	-39.6	265
Clinton	K-12	2,934	2,640	-10.0	2,254
Colchester	K-12	1,869	1,600	-14.4	1,444
Colebrook	K-6	118	96	-18.6	109
Columbia	K-8	606	494	-18.5	386
Cornwall	K-8	200	109	-45.5	84
Coventry	K-12	2,261	1,881	-16.8	1,589
Cromwell	K-12	1,790	1,512	-15.5	1,334
Danbury	PK-12	11,043	9,717	-12.0	8,601
Darien	K-12	5,086	4,281	-15.8	3,569
Deep River	K-6	527	369	-30.0	325
Derby	PK-12	2,528	1,961	-22.4	1,553
Eastford	K-8	206	136	-34.0	123
East Granby	K-12	1,047	810	-22.6	617
East Haddam	K-12	1,122	1,097	- 2.2	974
East Hampton	PK-12	2,087	1,779	-14.8	1,633
East Hartford	PK-12	12,178	8,696	-28.6	6,496
East Haven	PK-12	6,053	4,486	-25.9	3,448
East Lyme	K-12	3,450	3,339	- 3.2	2,821
Easton	K-8	959	824	-14.1	751

APPENDIX E (Continued)

Town	Grade Span	Fall 1971 Enrollment	Fall 1979 Enrollment	1971-1979 Percent Change	Projected Fall 1984 Enrollment
East Windsor	PK-12	2,133	1,648	-22.7	1,457
Ellington	K-12	2,284	2,079	- 9.0	1,959
Enfield	K-12	13,626	9,121	-33.1	6,043
Essex	K-6	528	424	-19.7	384
Fairfield	PK-12	12,044	9,235	-23.3	7,444
Farmington	K-12	3,583	2,933	-18.1	2,372
Franklin	K-8	268	216	-19.4	152
Glastonbury	PK-12	5,750	5,466	- 4.9	4,864
Granby	K-12	1,780	1,803	1.3	1,690
Greenwich	PK-12	11,083	8,980	-19.0	7,296
Griswold	K-12	1,758	1,527	-13.1	1,419
Groton	PK-12	9,353	7,159	-23.4	6,673
Guilford	PK-12	3,653	4,107	12.4	4,343
Haddam	——	1,034	Reg. # 17	——	——
Hamden	PK-12	10,016	7,289	-27.2	5,832
Hampton	K-6	172	156	- 9.3	170
Hartford	PK-12	28,632	25,138	-12.2	22,077
Hartland	K-8	289	204	-29.4	191
Harwinton	——	642	Reg. # 10	——	——
Hebron	K-6	796	740	- 7.0	678
Kent	K-8	329	334	1.5	350
Killingly	K-12	3,367	3,306	- 1.8	3,095
Killingworth	——	511	Reg. # 17	——	——
Lebanon	K-12	1,193	1,196	0.2	1,002
Ledyard	K-12	3,883	3,628	- 6.6	3,047
Lisbon	K-8	555	509	- 8.3	479
Litchfield	K-12	1,925	1,553	-19.3	1,218
Lyme	——	229	Reg. # 18	——	——
Madison	K-12	3,064	3,276	6.9	3,157
Manchester	PK-12	10,189	8,594	-15.7	7,185
Mansfield	K-8	1,751	1,181	-32.6	754
Marlborough	K-6	522	671	28.5	577
Meriden	PK-12	11,370	9,039	-20.5	7,397
Middletown	K-12	6,418	5,555	-13.4	4,520
Milford	PK-12	12,536	9,232	-26.4	7,364
Monroe	K-12	3,774	3,544	- 6.1	3,029
Montville	PK-12	4,511	3,517	-22.0	2,696
Naugatuck	PK-12	5,297	5,415	2.2	4,866
New Britain	K-12	13,954	8,709	-37.6	6,494
New Canaan	K-12	4,312	3,776	-12.4	3,320
New Fairfield	K-12	1,654	2,719	64.4	2,752
New Hartford	K-6	663	593	-10.6	523
New Haven	PK-12	21,882	18,789	-14.1	16,503
Newington	K-12	6,779	5,486	-19.1	4,460
New London	PK-12	4,837	3,764	-22.2	3,224

APPENDIX E (Continued)

Town	Grade Span	Fall 1971 Enrollment	Fall 1979 Enrollment	1971-1979 Percent Change	Projected Fall 1984 Enrollment
New Milford	K-12	3,862	4,394	13.8	4,384
Newtown	K-12	4,292	4,244	- 1.1	3,645
Norfolk	K-6	275	204	-25.8	194
North Branford	K-12	3,291	2,586	-21.4	2,014
North Canaan	PK-8	500	359	-28.2	376
North Haven	K-12	6,144	4,281	-30.3	3,271
North Stonington	K-12	1,203	954	-20.7	950
Norwalk	PK-12	17,780	12,964	-27.1	10,085
Norwich	PK-12	6,149	4,444	-27.7	3,667
Old Lyme	——	1,439	Reg. # 18	——	——
Old Saybrook	K-12	2,220	1,782	-19.7	1,371
Orange	K-6	2,020	1,259	-37.7	1,119
Oxford	K-8	1,052	1,060	0.8	1,044
Plainfield	PK-12	2,823	2,608	- 7.6	2,196
Plainville	PK-12	4,103	3,251	-20.8	2,539
Plymouth	PK-12	2,574	2,302	-10.6	2,031
Pomfret	K-8	441	387	-12.2	319
Portland	K-12	2,142	1,595	-25.5	1,281
Preston	K-8	797	531	-33.4	389
Putnam	K-12	1,532	1,575	2.8	1,518
Redding	K-8	1,164	1,136	- 2.4	1,062
Ridgefield	K-12	5,866	4,927	-16.0	3,930
Rocky Hill	K-12	2,104	2,112	0.4	2,120
Salem	K-8	303	376	24.1	420
Salisbury	K-8	506	363	-28.3	353
Scotland	K-6	145	119	-17.9	92
Seymour	K-12	3,460	2,552	-26.2	2,092
Sharon	PK-8	340	242	-28.8	221
Shelton	PK-12	6,210	6,296	1.4	5,461
Sherman	K-8	281	325	15.6	336
Simsbury	K-12	5,666	5,188	- 8.4	4,596
Somers	K-12	1,715	1,575	- 8.2	1,415
Southington	K-12	8,084	7,792	- 3.6	6,805
South Windsor	K-12	5,363	4,168	-22.3	3,186
Sprague	K-8	506	367	-27.6	330
Stafford	K-12	2,008	1,825	- 9.1	1,619
Stamford	PK-12	20,730	15,578	-24.9	12,336
Sterling	K-8	403	301	-25.3	259
Stonington	PK-12	3,557	2,809	-21.0	2,245
Stratford	K-12	9,836	7,692	-21.8	6,472
Suffield	K-12	2,344	2,017	-14.0	1,748
Thomaston	PK-12	1,510	1,225	-18.9	983
Thompson	K-12	1,597	1,435	-10.1	1,258
Tolland	K-12	2,713	2,616	- 3.6	2,376
Torrington	PK-12	5,552	4,530	-18.4	3,911

APPENDIX E (Continued)

Town	Grade Span	Fall 1971 Enrollment	Fall 1979 Enrollment	1971-1979 Percent Change	Projected Fall 1984 Enrollment
Trumbull	PK-12	7,954	6,764	-15.0	5,338
Union	K-8	67	70	4.5	64
Vernon	K-12	7,319	5,798	-20.8	4,438
Voluntown	K-8	280	261	- 6.8	243
Wallingford	PK-12	8,930	7,324	-18.0	6,120
Waterbury	PK-12	17,950	14,701	-18.1	12,172
Waterford	K-12	4,538	3,381	-25.5	2,693
Watertown	PK-12	4,649	3,863	-16.9	3,233
Westbrook	K-12	951	910	- 4.3	710
West Hartford	K-12	12,865	8,942	-30.5	7,086
West Haven	PK-12	9,822	7,434	-24.3	6,036
Weston	K-12	2,345	2,106	-10.2	1,618
Westport	PK-12	7,362	5,514	-25.1	4,192
Wethersfield	K-12	5,954	4,229	-29.0	3,182
Willington	K-8	677	584	-13.7	561
Wilton	K-12	4,279	3,782	-11.6	3,240
Winchester	K-8	1,595	1,335	-16.3	1,079
Windham	K-12	4,347	3,964	- 8.8	3,388
Windsor	K-12	5,671	4,586	-19.1	3,986
Windsor Locks	K-12	4,114	2,513	-38.9	1,570
Wolcott	PK-12	4,059	3,189	-21.4	2,404
Woodbridge	K-6	1,118	712	-36.3	781
Woodstock	K-8	727	671	- 7.7	593
Region No. 1	9-12	694	703	1.2	565
Region No. 4	7-12	1,175	1,064	- 9.4	816
Region No. 5	7-12	3,260	2,798	-14.2	2,109
Region No. 6	K-12	1,107	972	-12.2	842
Region No. 7	7-12	991	1,166	17.7	1,087
Region No. 8	7-12	1,043	1,234	18.3	1,314
Region No. 9	9-12	831	1,048	26.1	1,033
Region No. 10	K-12	2,395	2,518	5.1	2,603
Region No. 11	7-12	465	371	-20.2	372
Region No. 12	K-12	1,225	1,190	- 2.9	1,068
Region No. 13	K-12	2,473	1,926	-22.1	1,556
Region No. 14	K-12	2,012	1,797	-10.7	1,620
Region No. 15	K-12	2,601	3,043	17.0	3,190
Region No. 16	K-8	2,131	1,670	-21.6	1,238
Region No. 17	K-12	1,540	2,404	56.1	2,398
Region No. 18	K-12	1,668	1,482	-11.2	1,289